



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/541,753

07/08/2005

Katsuhiko Higashino

Q88807

3898

23373 7590 11/29/2007
SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

HU, HENRY S

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

11/29/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/541,753

Applicant(s)

HIGASHINO ET AL.

Examiner

Henry S. Hu

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on RCE of September 30, 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This Office Action is in response to two things including: (A) **RCE Amendment** and (B) **Response** (after Final) filed on September 30, 2007 and August 10, 2007 respectively. With such a RCE amendment, **Claims 1-5 and 7-9 were amended**; Claim 6 was previously cancelled, while no claim was currently cancelled or added. To be more specific, parent Claim 1 was further narrowed down to become a **fluorine** rubber composition instead of a wider scope such as an elastomer composition, while its dependent Claims 2-5 and 7-9 are amended accordingly. Applicants allege the support is from the first paragraph of page 13.

Claims 1-5 and 7-9 with only one independent claim (Claim 1) are now pending. An action follows.

Response to Argument

2. Applicant's arguments filed on August 10 and 30, 2007 have been fully considered but they are not persuasive. The focal arguments related to the patentability will be addressed as follows: Such an amendment on the pending parent Claim 1 involves only one thing: parent Claim 1 was further narrowed down to become a **fluorine** rubber composition instead of a wider scope such as an elastomer composition. This is addition to previous narrow down as "carbon fluoride filler is heat treated at 300 to 550 °C in advance", which is from cancelled Claim 6.

3. In view of such an amendment, previous 103 rejections are modified. **Non-final office action for this RCE is thereby applied** as follows:

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. The limitation of parent **Claim 1** in present invention relates to **a crosslinkable fluorine rubber composition for plasma process comprising two components as: (A) a crosslinkable**

fluorine rubber, and (B) a carbon fluoride filler, wherein carbon fluoride filler is heat treated at 300 to 550 °C in advance.

See other limitations of dependent Claims 2-5 and 7-9.

6. Claims 1-2, 4 and 7-9 are rejected under 35 U.S.C. 103(a) as being obvious by Minamino et al. (US 6,974,845 B1) in view of SU 516126 A (Assignee: Lidorenko) for the reasons set forth in paragraphs 4-5 of office action dated 12-15-2006 and paragraphs 7-12 of office action dated 5-9-2007 as well as the discussion below.

7. Claims 1-2, 4 and 6-9 are rejected 35 U.S.C. 103(a) as being unpatentable over Ohata et al. (US 5,430,103), Amin et al. (US 5,444,116) or Amin et al. (US 5,461,107), each individually in view of Minamino et al. (US 6,974,845 B1) and SU 516126 A (Assignee: Lidorenko) for the reasons set forth in paragraphs 7-8 of office action dated 12-15-2006 and paragraphs 7-12 of office action dated 5-9-2007 as well as the discussion below.

8. Claims 3 and 5 are rejected 35 U.S.C. 103(a) as being unpatentable over Ohata et al. (US 5,430,103), Amin et al. (US 5,444,116) or Amin et al. (US 5,461,107), each individually in view of Minamino et al. (US 6,974,845 B1) and SU 516126 A (Assignee: Lidorenko), and further in view of Matsumoto et al. (US 6,610,761 B1) and paragraphs 7-12 of office action dated 5-9-2007 for the reasons set forth in paragraph 9 of office action dated 12-15-2006 as well as the discussion below.

9. Claims 3 and 5 are rejected 35 U.S.C. 103(a) as being unpatentable over Minamino et al. (US 6,974,845 B1) in view of SU 516126 A (Assignee: Lidorenko), and further in view of Matsumoto et al. (US 6,610,761 B1) for the reasons set forth in paragraph 10 of office action dated 12-15-2006 and paragraphs 7-12 of office action dated 5-9-2007 as well as the discussion below.

10. Applicants have now claimed in twice-amended parent **Claim 1** an unexpected way of obtaining a crosslinkable fluorine rubber composition for plasma process comprising two components including: (A) a crosslinkable fluorine rubber, and (B) a carbon fluoride filler. The two narrow downs so far are: (a) carbon fluoride filler is heat treated at 300 to 550 °C in advance (from the cancelled Claim 6), and (b) current crosslinkable composition is a fluorine rubber composition instead of a wider scope such as an elastomer composition.

11. All 103 rejections are thereby modified as follows:

(A) Each of **four** primary references including **Minamino, Ohata, Amin "116" and Amin "107"** may have already at least somewhat heated filler and/or its composition so as to remove volatile impurities and the like as known in the art. With respect to current limitations on parent Claim 1, each of four primary references is still silent about two things including: (a) pre-heating carbon fluoride filler at a specified high temperature such as 300 to 550 °C, and (b) using a crosslinkable rubber.

SU 516126 A (Assignee: Lidorenko) teaches the missing (a) thing since carbon fluoride filler can be heated up to the softing temperature of the binder polymer. Bo doing so, such a composition can be useful as cathode material of high capacity electric battery (see title and its English abstract).

Minamino teaches the missing (b) thing since fluorine-containing elastomer is functionally equivalent and interchangeable with non-fluorine-containing elastomer (see column 2, line 52-67; title). By doing so, each can make effective crosslinkable composition with UV irradiation. One ordinary skill in the art would have found it obvious to modify reference's process of making such a composition by replacing with or add in fluorine-containing elastomer as taught by Minamino. One would expect it succeed based on functional equivalence and interchangeability.

12. (B) The language of "pre-heating at 300 to 550 °C" as a claim limitation may be not enough since it is without the time range and also without the weight loss. As known in the art, in order to obtain the same or similar result heating temperature may be NOT necessarily to be that high as long as its heating time is long enough. Current claim limitation **does not include any of the time range** such as 2 hour used in Example 2 (see page 5 at bottom line of Remarks). Additionally, it is unclear that **how much is the weight loss** in this regard.

As discussed earlier, some binder polymers used by SU 516126 A may have had a softening temperature, which is overlapping with the range of 300-550 °C. **Heating sequence** such as **before or after** the mixing of polymer and carbon fluoride filler may be not critical for final product performance.

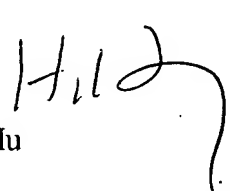
13. (C) Applicants allege that pre-heating is for the purpose of removing impure gases in the carbon fluoride filler. By doing so, enhanced plasma resistance such as on NF₃, O₂ and fluorine plasma can be obtained. However, such a statement is not included at all in the limitations of parent Claim 1. Attention is directed to the fact that **any filler as known in the art would “always” contain “at least some” volatile compounds such as water and impurities**. This composition may be not resisted to other type plasma. It is unclear on two things including: (A) what kind of impure gases are involved and (B) how much weight loss is needed in this purpose.

14. Parent Claim 1 was further narrowed down to become a **fluorine** rubber composition instead of a wider scope such as an elastomer composition. This is addition to previous narrow down as “carbon fluoride filler is heat treated at 300 to 550 °C in advance”, which is from cancelled Claim 6. Such an amendment is still not patentably enough on above-mentioned three key issues. Therefore, previous 103 rejections are all modified in this regard. **Non-final office action for this RCE is thereby applied.**

Conclusion

15. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Dr. Henry S. Hu** whose telephone number is **(571) 272-1103**. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan, can be reached on (571) 272-1119. The fax number for the organization where this application or proceeding is assigned is (571) 273-8300 for all regular communications. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Henry S. Hu

Patent Examiner, art unit 1796, USPTO

November 25, 2007

/Peter D. Mulcahy/
Peter D. Mulcahy
Primary Examiner
Art Unit 1796